

REMARKS

As a preliminary matter, Applicants wish to acknowledge on the record the significant efforts put forth by Examiner Choudhury in this application. Applicants recognize that this application has been extraordinarily difficult to process due to the large number of claims and the many diverse aspects of the present invention. The inventors and their counsel are sincerely grateful for the Examiner's continued patience and cooperation.

Although a relatively large number of claims remain pending, Applicants have attempted to simplify the Examiner's burden by reciting common features in each of the independent claims. In particular, each of the independent claims recites that a server *provides a preboot attribute determination program to the client computer prior to startup of the operation system on the client computer*, and that the server *selects one of a plurality of management instruction sets stored on said server computer for said client computer based upon said plurality of attributes of said client computer determined by said preboot attribute determination program*. At least these features are not found in the Chang reference or any other prior art of record. Because each of the pending independent claims effectively recite these features of the invention, all of the pending claims are allowable if the Examiner agrees that neither of these two features are disclosed within the Chang reference. Applicants have not separately argued the patentability of the various additional features found in claims 1-116 in this Response because such analysis would be cumulative to the single issue presently before the Examiner. Nevertheless, Applicant reserves the right to separately set forth the patentability of each claim element and to additionally address any shortcomings in the various rejections set forth in the Office Action in a subsequent response or on appeal, if necessary.

The Chang reference cited against Applicant's claims describes a basic implementation of the pre-boot execution environment (PXE) that was originally developed to allow network interface cards (NICs) to obtain a boot program for a computer over a network. PXE is described in Applicant's Specification at, for example, page 8, line 24 through page 9, line 3. PXE has been widely adopted throughout the industry, and most modern NICs include PXE functionality as described in the Chang reference. Indeed, the present invention exploits the widespread availability of PXE functionality (and/or similar pre-boot environments) to repair, update and/or otherwise maintain even computers that were previously unknown to the administration server. The present invention therefore

builds upon the basic PXE technologies set forth in the Chang reference to provide additional features and benefits not disclosed in that reference, most notably the ability to obtain previously unknown attributes from the client computer and to automatically select configuration instructions for the client computer based upon the newly-discovered attributes. This ability to operate even in the face of unknown client computer attributes allows for discovery and automatic configuration of new computer systems without human intervention, and also allows improved system diagnostic capability and other benefits not realized by the Chang reference.

In contrast to the presently-claimed invention, Chang only contemplates administration of "predetermined" computer resources that have been previously known to the server.¹ In the Chang system, an administrator manually enters each client computer into an "access control list database" (ACL-DB, shown as element 11a in Chang's FIG. 1), and all access to server resources is contingent upon the server authenticating the client computer with the ACL-DB.² When the computer is later powered up, the computer transmits its NIC address to the server for verification.³ Chang's FIG. 3B, for example, expressly shows that the network connection between the client and server is "cut" if the client's NIC address is not recognized in an access control list database.⁴ Chang also expressly states that its preboot process is "controlled by a system administrator,"⁵ further emphasizing that only computer systems that are known to a human operator are considered.

Administrative functions in the Chang system are therefore contingent solely on the NIC address of the client computer. If the computer's NIC address is not found within the ACL database, the connection to the network is cut and the computer is denied access to the server. If the NIC address is found within the ACL database, workstation updates are provided based solely upon the NIC address of client computer. The tasks carried out by the Chang system are therefore entirely responsive to the previously-known identity of a computer, and are not based upon attributes of the client computer determined by a preboot attribute determination program provided by the server to the client, as recited in the present claims. Accordingly, Chang does not determine client computer attributes by providing a pre-boot attribute determination program from the server to be executed on the client

¹ See, e.g., Chang at col. 5, lines 30-32, and the preambles of each independent claim.

² See, e.g., Chang at col. 4, lines 52-60.

³ Chang at col. 6, lines 56-58.

⁴ See also Chang at col. 6, lines 56-63.

⁵ See, e.g., Chang at Abstract, last sentence and col. 2, lines 50-52.

computer, nor does the reference describe automatically selecting instructions for the client computer based upon newly-discovered attributes. The claimed capabilities of determining attributes of the client computer and selecting instructions based upon the newly-discovered attributes are therefore well beyond the scope of the Chang reference.

More particularly, the Office Action states that the attribute determination features of the present invention are implicit in Chang, noting that preboot attribute determination program "must be present since a check is done of the client to determine if it is booted or not". Applicant respectfully disagrees for several reasons. First, Chang makes no mention of a check to determine if the computer is booted. To the contrary, the pre-boot request from the PXE client only occurs before the computer boots, so no express check is necessary. Even if such a check were to occur, however, Chang clearly does not disclose performing the query within a preboot attribute determination program provided from the server to be executed by the client. Because the implicit "check" suggested by the Office Action is not described in the Chang reference, the Chang disclosure cannot extend to the language of the present claims. At the very least, Applicant's "attribute determination program" that is provided from the server and executed by the client computer is well beyond the actual disclosure of the Chang reference.

The Office Action further asserts that Chang implicitly discloses selecting management instructions based upon attributes of the client computer, stating that "it is inherent that the application contains the claimed management instructions, as well as selects the appropriate management instructions for each client machine". Applicant respectfully notes, however, that this language does not address the present claims' recital that the selection be based upon attributes obtained from the preboot attribute determination program previously provided by the server. As noted above, Chang's disclosure is limited to performing tasks on previously-known computer systems that are registered with a database. Chang in no way automatically selects management instructions based upon newly-determined attributes of the client computer. Further, Applicant respectfully disagrees that the claimed language would be inherent, since Chang has in fact described a system based upon other parameters without pre-boot attribute determination or instruction selection based upon newly-determined client computer attributes. The additional features recited in Applicant's claims provide significant benefits over the Chang reference, but are not required by the Chang reference to achieve its own goals. Because the Chang disclosure is


complete unto itself without the inclusion of Applicant's additional features, Applicant respectfully disagrees that selection of an instruction set based upon the newly-determined attributes of the client computer is an "inherent feature" of the Chang reference.

The Office Action concludes by stating that "Chang's design allows for pre-boot diagnostic of the clients and allows for scripts to be sent and executed on the clients". Even accepting this statement, however, the present invention goes much deeper than this language would indicate. In particular, each of the pending claims effectively recite that the server provides a pre-boot attribute determination program to the client, that the client executes the attribute determination program before booting the local operating system, and the server automatically selects management instructions for the client computer based upon the attributes determined by the previously-provided attribute determination program. These features of the invention provide significant benefits that are well beyond the scope of the Chang reference, or any other prior art reference of record. For these reasons, Applicants very respectfully request that the Examiner reconsider the rejections set forth in the Office Action in view of the claim amendments and remarks contained herein.

Although no additional fees or extensions of time (other than the one month extension of time addressed elsewhere) are believed to be required, Applicant requests that the Commissioner grant any extension and/or debit any fees (including any fees for additional claims or extensions of time) from Deposit Account No. 50-2117 for entry of this Response and/or to avoid abandonment of this Application.

Once again, the inventors and their counsel greatly appreciate the Examiner's efforts on this Application, and we look forward to receiving a Notice of Allowance or other communication. Should the Examiner have any questions or wish to discuss this application in person, Applicant's counsel would welcome a call from the Examiner at (480) 385-5060.

Respectfully submitted,



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Dated

April 7, 2005

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